

Java -- Why Bill Gates Is Worried

by Tom Gall

In May of 1995 one of my friends up in the Twin Cities sent me email with only one line of text: "go to <http://java.sun.com>." The very first version of Java was publicly available, downloadable for free. There was one minor catch: it was an alpha version, and it ran only on Sun's Solaris.

Times sure have changed since then! Microsoft released Windows 95, as well as Windows NT 4.0. Java, on the other hand, has exploded with such force that it now runs on pretty much every operating system on the planet. In addition, since May 1995, Java has progressed through versions Alpha 1, Alpha 2, Alpha 3, Beta 1, Beta 2, Version 1.0, Version 1.01, Version 1.02, Version 1.1, Version 1.1.1, Version 1.1.2, Version 1.1.3 to today's Version 1.1.4. Even Scotty couldn't get the Enterprise to go that fast!

So, what is Java, and why should anybody care, especially Chairman Bill? Java, first and foremost, is a programming language; its syntax is closely related to C and C++. There are differences between C++ and Java, however, and it's these differences that make Bill Gates worried about Java's effect on his empire.

Java is a garbage-collected language. Programmers have an easier time writing reliable software because the task of keeping track of memory resources consumed by their application is handled "automagically".

Java applications are compiled down to bytecodes -- not the native instruction set of the processor on which the Java program is going to run. This means that Java applications can be transported from computer to computer, and run without having to be recompiled. They just run. And if you have a "Just In Time" compiler installed, your Java application is translated to native processor instructions when you run it.

Java comes with a vast set of class libraries. These are reusable "parts" that your own Java applications can leverage to do more complex things. Threading, communications, distributed computing, graphical user interfaces, file I/O, and other functions are implemented in Java's class libraries. In addition, Java supports building your own class libraries.

Java applications run inside a Java Virtual Machine, akin to an operating system in some respects. You can run a Java application on any operating system that has Java. Think about this! With Java, you are not bound to an operating system any longer. You are free to choose the operating system you prefer. All of your application will continue to run.

Sun is currently suing Microsoft, whose recent implementation of Java for Internet Explorer 4 did not meet Sun's Java Compliance Suite requirements. However, the Java implementation in Windows 95 and Windows NT is Sun's, not Microsoft's version.

IEEE Section Meeting

Featuring Tom Gall: Java

Monday, December 1, 7:00 pm
Mayo Medical Sciences Building
(321 3rd Avenue SW, Rochester)

☞ Pizza & socializing at 6:30 pm ☜

Tom Gall will describe some of Java's technical details, as well as explain why Java is so important. He will discuss Microsoft's Java Developers Kit, pointing out the differences between this Java implementation and Sun's.

Tom Gall is a software engineer at IBM Rochester. He has been involved with Java since its first release. He has a B.S. in Computer Science from the University of North Dakota, Grand Forks. When not writing Java code, he may be playing Judo, or on stage with the Rochester Civic Theater.



IEEE Power Society Meeting

St. Mary's Hospital Power Plant Tour

Thursday, November 13, 6:30 pm
St. Mary's Hospital
14th Ave. SW at 2nd St. SW
Rochester, Minnesota

Assemble in the main lobby at the hospital's new main entrance, which is located on 14th Avenue, SW. We'll then move to conference room M-459 for a brief meeting prior to the tour.

Parking is available on the street or in the underground parking ramp adjacent to the main entrance.

Wear comfortable shoes and casual attire. There will be stairs and steel-grate walkways to negotiate. If you have special mobility needs, please make prior arrangements by calling Neil Stiller (280-1687) or Matt Graham (284-3028).

St. Mary's Hospital Power Plant Tour

A tour of the steam and generation plant operated by the Mayo Foundation at St. Mary's Hospital is being held for Southern Minnesota section members and guests on November 13. See page 1 for details on attending the tour.

The Mayo Foundation has a long history of operating steam and generation equipment for facility processes, both at St. Mary's Hospital and the Franklin Heating Station. Our tour will focus on how the plant utilizes energy to accomplish air conditioning through chiller systems, heating, and electric generation.

Steam systems operated by the Mayo Foundation include three Nebraska 80,000-lb/hr boilers, fired by natural gas or #2 oil,

serving a common 250-psi steam header; and five Carrier 2000-ton chillers (three operated from electric supply and two from steam: one 250-psi steam turbine, and one 8.5-psi steam turbine).

Electric generation equipment includes a 3,000-kW generator driven by a 250-psi steam turbine, two 2,500-kW diesel generators, and a 4,700-kW natural-gas combustion turbine.

The natural-gas combustion turbine is the newest piece of equipment; it was commissioned in summer 1996. This turbine has a 24,000-lb/hr 250-psi boiler for heat recovery.

Tour participants will see each of the major pieces of equipment, and learn how the systems have evolved as the St. Mary's campus has grown. Tom McNellan of St. Mary's will conduct the tour.

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Check Out Our Web Site

The Southern Minnesota IEEE Section now has a home page on the World Wide Web. The URL is www.ieee.org/regional/section/s_minn.

Visit the web site to see our tentative meeting schedule, to contact section board members, or to link to the Mankato State University IEEE chapter's home page. The web site also includes pages containing information on the section's PACE and membership activities, as well as links to the national IEEE organization.

Thanks to Diane Manlove for designing and maintaining our web site.

